Killarney

Killarney Overview

Volunteer monitoring began at Lake Killarney in the late 1980s and continued through 2004. The data indicate that this lake, partly in the city of Federal Way, is moderately high in primary productivity (borderline eutrophic) with good water quality.

Lake Killarney has a public boat launch and in the past has been heavily infested with milfoil. Though herbicide treatments were successful, residents should keep an eye on aquatic plants growing nearshore to catch early new infestations.

Physical Parameters

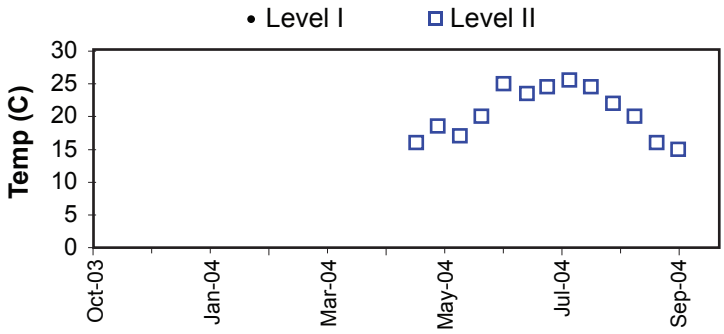
Secchi transparency ranged between 1.7 and 3.0m from January through October, averaging 2.3 m which is in the lower range for clarity among the monitored small lakes. Surface water temperatures ranged between 15.0 and 25.5 degrees Celsius for the same period, with the maximum in the mid range for the data reported for the group.

There were very few water level or precipitation values recorded.

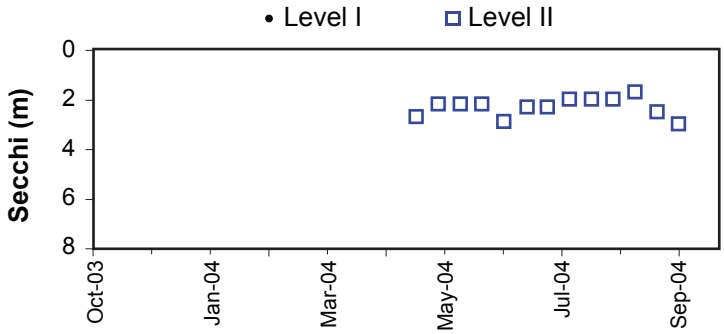
Nutrient Analysis and TSI Ratings

Total phosphorus and nitrogen remained in proportion to each other through mid-July, when nitrogen rose to a broad peak in late August and then declined. The N:P ratio ranged from 18 to 33, averaging 25 which suggested there could have been good conditions for nuisance bluegreen growth during the sampling season.

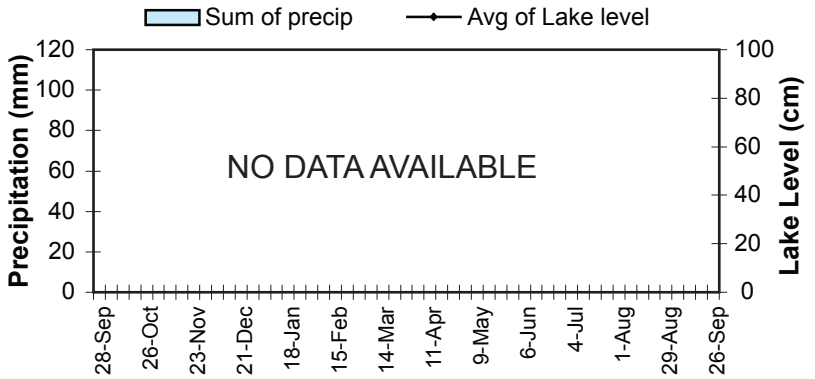
Lake Temperature



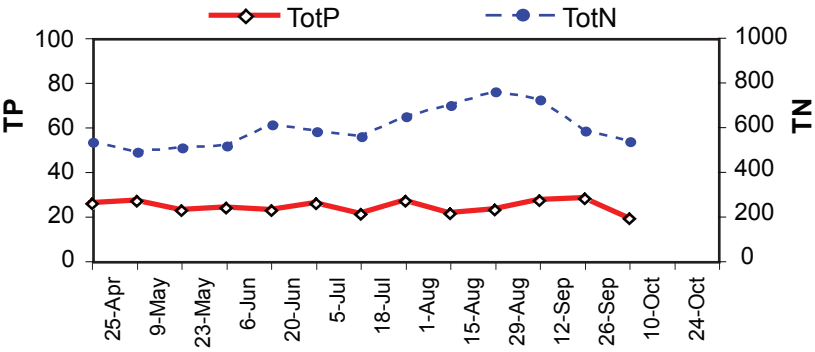
Secchi Depth



Lake Level and Precipitation



Nutrient Analysis



Profile data indicated thermal stratification was poorly maintained, and there was essentially no phosphorus build-up in the deep water through the summer. Chlorophyll data indicated that algae were approximately equal in concentration through the water column on both dates.

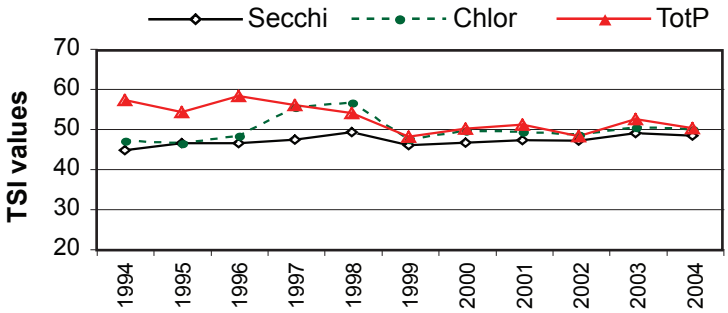
The 2004 TSI values were close to each other at the threshold of eutrophy, very similar to values over the last five years.

Chlorophyll Concentrations and Algae

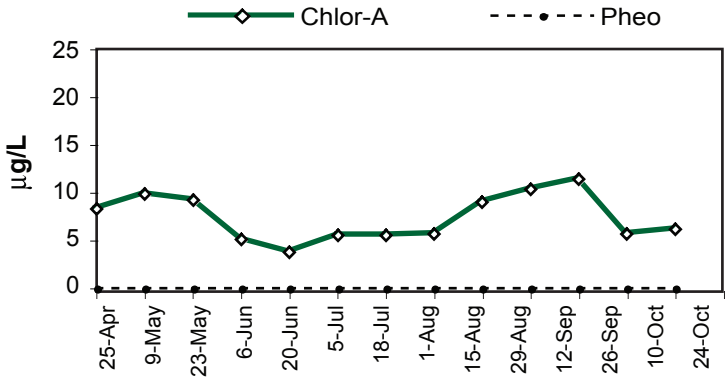
Chlorophyll content made a plateau in May, declined from June through early August, and then rose to a peak in mid September. Spring algae were dominated by the chrysophyte *Dinobryon sociale*, as well as several other chrysophyte species. The colonial bluegreen *Woronichinia* was common in the summer, followed by abundant *Anabaena circinalis*, which persisted through September.

Date	Secchi	depth-m	degC	Chlor-A	TP µg/L	TN µg/L
5/23/04	2.2	1	17.0	9.31	23.0	513
		2.5	17.0	11.70	24.9	524
8/29/04	2.0	1	22.0	10.40	23.1	765
		2.5	21.0	12.80	27.7	654

TSI Ratings



Chlorophyll a Concentrations (ug/L)



Common Algae

	Group
Dinobryon sociale	Chrysophyta
Oscillatoria sp.	Cyanobacteria
Woronichinia sp	Cyanobacteria

Killarney

2004 Level I Data

Daily Data Summary

Week of	Sum of precip. (mm)	# of days	Avg of lake level (cm)	# of days
28-Sep-03				
5-Oct-03				
12-Oct-03				
19-Oct-03				
26-Oct-03				
2-Nov-03				
9-Nov-03				
16-Nov-03				
23-Nov-03				
30-Nov-03				
7-Dec-03				
14-Dec-03				
21-Dec-03				
28-Dec-03				
4-Jan-04				
11-Jan-04				
18-Jan-04				
25-Jan-04				
1-Feb-04				
8-Feb-04				
15-Feb-04				
22-Feb-04				
29-Feb-04	5.0	3	89.2	6
7-Mar-04	6.0	7	86.3	4
14-Mar-04				
21-Mar-04				
28-Mar-04	20.0	2	83.0	1
4-Apr-04				
11-Apr-04				
18-Apr-04				
25-Apr-04				
2-May-04				
9-May-04				
16-May-04				
23-May-04				
30-May-04				
6-Jun-04				
13-Jun-04				
20-Jun-04				
27-Jun-04				
4-Jul-04				
11-Jul-04				
18-Jul-04				
25-Jul-04				
1-Aug-04				
8-Aug-04				
15-Aug-04				
22-Aug-04				
29-Aug-04				
5-Sep-04				
12-Sep-04				
19-Sep-04				
26-Sep-04				
Min	5.0		83.0	
Max	20.0		89.2	
Total	31.0			

Weekly Data Summary

Sample date	Sample time	Secchi (m)	Temp (°C)	Algae* (Shore)	Algae* (at site)	Goose Count*
6-Mar-04		1.7	7.0	P1	P1	
21-Mar-04		1.6	13.0	P2	P2	
27-Mar-04		2.4	13.0	P2	P2	
	Min	1.6	7.0			
	Max	2.4	13.0			

* See introduction for discussion of algae assessment and goose count methods.

2004 Level II Data

Date (2004)	Temp (°C)	Secchi (m)	Chl-*a* (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI		
								Secc	chl-a	TP
25-Apr	16.0	2.7	8.33	25.9	539	3	21	45.7	51.4	51.1
9-May	18.5	2.2	9.93	27.1	495	3	18	48.6	53.1	51.8
23-May	17.0	2.2	9.31	23.0	513	3	22	48.6	52.5	49.4
6-Jun	20.0	2.2	5.14	24.0	523	3	22	48.6	46.6	50.0
20-Jun	25.0	2.9	3.84	22.8	618	3	27	44.6	43.8	49.3
5-Jul	23.5	2.3	5.61	26.0	587	3	23	48.0	47.5	51.2
18-Jul	24.5	2.3	5.61	21.2	563	3	27	48.0	47.5	48.2
1-Aug	25.5	2.0	5.77	27.1	653	3	24	50.0	47.8	51.8
15-Aug	24.5	2.0	9.08	21.4	703	3	33	50.0	52.2	48.3
29-Aug	22.0	2.0	10.40	23.1	765	3	33	50.0	53.5	49.4
12-Sep	20.0	1.7	11.50	27.3	728	3	27	52.3	54.5	51.9
26-Sep	2.5	16.0	5.77	28.1	589	3	21	20.0	47.8	52.3
10-Oct	3.0	15.0	6.22	19.4	542	3	28	20.9	48.5	46.9
24-Oct										

	Temp (°C)	Secchi (m)	Chl-*a* (µg/l)	TP (µg/l)	TN (µg/l)	Algae	N:P	Calculated TSI		
								Secc	chl-a	TP
Mean	18.6	4.3	7.4	24.3	601.4	3.0	25	44.3	49.7	50.1
Median	20.0	2.2	6.2	24.0	587.0	3	24	48.6	48.5	50.0
Min	2.5	1.7	3.8	19.4	495.0	3	18	20.0	43.8	46.9
Max	25.5	16.0	11.5	28.1	765.0	3	33	52.3	54.5	52.3
Count	13	13	13	13	13	13	13	13	13	13

TSI Average = 48.0